

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

Investigation by the Department of Telecommunications and Energy
on its own Motion into the Appropriate Pricing, based upon Total
Element Long-Run Incremental Costs, for Unbundled Network
Elements and Combinations of Unbundled Network Elements, and
the Appropriate Avoided Cost Discount for Verizon New England,
Inc. d/b/a Verizon Massachusetts' Resale Services in the
Commonwealth of Massachusetts

D.T.E. 01-20

**DIRECT TESTIMONY OF CATHERINE E. PITTS
ON RECONSIDERATION**

ON BEHALF OF AT&T AND WORLDCOM

PUBLIC VERSION

October 2, 2002

1 **I. INTRODUCTION AND SUMMARY.**

2 **Q. PLEASE STATE YOUR NAME, EMPLOYER, AND BUSINESS ADDRESS.**

3 A. My name is Catherine E. Pitts (formerly Petzinger). I am an independent contractor working on
4 behalf of AT&T and WorldCom. My address is 810 Long Drive Road, Summerville, South
5 Carolina.

6 **Q. ARE YOU THE SAME CATHERINE E. PITTS WHO PREVIOUSLY TESTIFIED IN**
7 **THIS PROCEEDING?**

8 A. Yes. I filed rebuttal testimony on July 18, 2001, revised rebuttal testimony on August 27, 2001,
9 and surrebuttal testimony on December 17, 2001. In addition, I was cross-examined at
10 hearings on January 29, 2002. All of my testimony in this proceeding addresses switching
11 costs.

12 **Q. PLEASE DESCRIBE THE PURPOSE OF YOUR TESTIMONY AND PROVIDE A**
13 **SUMMARY OF ITS CONCLUSIONS.**

14 A. My testimony responds to the Department's request for additional information in its September
15 24, 2002, Order Granting Verizon and AT&T Motions for Reconsideration, In Part, and
16 Requesting Additional Evidence (the "First Order on Reconsideration"). In this testimony, I
17 further explain why the methodology for blending new and growth switch equipment which I
18 presented in the Worksheet attached to RR-56 is the appropriate method for melding new
19 switch and growth equipment pricing under TELRIC, and why the Department's conclusion that
20 unbundled switching rates should reflect an assumption that the proper mix of new switch and
21 growth equipment material investment in a forward-looking network would be 90/10
22 new/growth is correct and should not be revised.

1 A slightly revised New Switch / Growth Equipment Worksheet (the “Worksheet,”
2 attached hereto as Exhibit 1) accompanies this testimony in both electronic and paper forms.
3 This Worksheet is a revised version of the attachment to RR-56, which was previously
4 provided to the Department in electronic form. It differs from the previous version in that it
5 reflects the Department’s assumption of a Weighted Average Cost of Capital of 11.45 percent,
6 and the Department’s adoption of a twelve year useful life for digital switching.

7 With these two modifications (which together increase the new/growth ratio slightly, to
8 92/8), the Worksheet is consistent with all relevant findings by the Department in its July 11,
9 2002, Order (the “Inputs Order”). Specifically, this Worksheet reflects and is consistent with
10 the Department’s findings that: (i) TELRIC reflects a “scorched node” assumption under which
11 the Department must “attempt to estimate the costs of a new network ‘dropped in place’ to
12 serve current demand and reasonably foreseeable capacity requirements;”¹ (ii) demand will
13 grow by 1.5 percent per year;² (iii) new digital switches will have a useful life of 12 years;³ and
14 (iv) the Weighted Average Cost of Capital will be 11.45 percent.⁴ Verizon challenged none of
15 these findings on reconsideration.

16 I am providing the Worksheet in electronic form as well, so that the Department may
17 evaluate the (negligible) effect on this analysis of a lower cost of capital, and may do other
18 sensitivity analyses of its choosing.

¹ D.T.E. 01-20 Inputs Order, at 21-23.

² D.T.E. 01-20 Inputs Order, at 302, 511. *See also* Exh. ATT-VZ 4-29-2S.

³ D.T.E. 01-20 Inputs Order, at 88.

⁴ D.T.E. 01-20 Inputs Order, at 78.

1 **Q. DOES YOUR TESTIMONY RESPOND TO THE DEPARTMENT’S REQUEST**
2 **FOR EVIDENCE ON SWITCH MATERIAL PRICES?**

3 A. Yes. In addition to addressing the appropriate new to growth ratio, I explain how the data
4 provided by Verizon in response to RR-49-S shows that the new switch discount adopted by
5 the Department is too low and that the resulting switch material prices are too high.

6 **II. THE RATIO OF 90 PERCENT NEW TO 10 PERCENT GROWTH SWITCH**
7 **EQUIPMENT PRODUCED BY RR-56 AND ADOPTED BY THE DEPARTMENT**
8 **IS “THE ANSWER MOST CORRECT UNDER TELRIC”.⁵**

9 **Q. HOW IS YOUR NEW SWITCH / GROWTH EQUIPMENT MIX WORKSHEET**
10 **CONSTRUCTED AND WHY IS THIS MODELING CONSTRUCT APPROPRIATE**
11 **UNDER TELRIC?**

12 A. I constructed the Worksheet under the assumption that all new switches are installed in year one
13 and then I estimated the growth equipment needed for the switch over the next twelve years.
14 TELRIC requires the first part of this assumption because TELRIC assumes that a local
15 telecommunications network is constructed from scratch, using the most efficient technology, but
16 keeping the existing locations of the wire centers. In the Inputs Order, the Department
17 confirmed that this is the “appropriate foundation for a TELRIC analysis.”⁶ The assumption of
18 all new switches in the first year and growth equipment added in subsequent years to
19 accommodate forecasted demand appropriately determines the ratio of new to growth because
20 such a network corresponds to the “dropped in place” requirement of the TELRIC
21 methodology.⁷

⁵ First Order on Reconsideration, at 8.

⁶ See D.T.E. 01-20 Inputs Order, at 301

⁷ See D.T.E. 01-20 Inputs Order, at 302.

1 In contrast, Verizon's initial proposal of utilizing one year of almost entirely growth
2 equipment and Verizon's subsequent life-cycle approach which includes a combination of new
3 and growth Lucent equipment in the first year of its five year study do not comply with
4 TELRIC's requirement of a "dropped in place" network.⁸ Neither Verizon's one-year slice of
5 switch purchases nor five-year slice of switch purchases have any relevance to the estimation of
6 long-run, forward-looking economic costs under TELRIC which requires that you start from
7 scratch in costing out a forward-looking network. Instead, both of Verizon's proposals assume
8 that one starts with the existing network in place, and adds growth capacity or replaces switches
9 over time as dictated by the historic stock of switches that happens to have been in place at the
10 outset.

11 **Q. WHY DOES YOUR REVISED WORKSHEET ANALYZE SWITCHING**
12 **INVESTMENT OVER A TWELVE YEAR PERIOD, INSTEAD OF THE FIFTEEN**
13 **YEARS YOU HAD ASSUMED IN THE PRIOR VERSION?**

14 A I utilized twelve years because the Department adopted a twelve-year depreciation life for ESS
15 digital switch equipment.⁹ The fifteen-year period that I used initially reflected the depreciation
16 life recommended by the AT&T/WorldCom witness.

17 **Q. WHAT DIFFERENCE DOES THIS CHANGE MAKE?**

18 A. It increases the resulting percent new switch in the new/growth ratio by about a percentage
19 point.

20 **Q. IN THE WORKSHEET, WHY DO YOU ASSUME NOT ONLY THAT NEW**
21 **SWITCH PRICES WOULD BE PAID AT THE BEGINNING OF YEAR ZERO,**
22 **WHEN UNDER TELRIC ONE ASSUMES THAT NEW SWITCHES ARE BEING**
23 **PUT INTO PLACE, BUT ALSO THAT VERIZON WOULD PAY NEW SWITCH**

⁸ D.T.E. 01-20 Inputs Order, at 301.

⁹ D.T.E. 01-20 Inputs Order, at 88.

1 **PRICES FOR THE GROWTH PARTS PURCHASED OVER THE NEXT YEAR**
2 **AND A HALF?**

3 A. The switching vendors allow telephone companies to buy growth equipment for a new switch at
4 new switch prices for a period of time, which is usually between one and three years. The
5 specific period differs by vendor, by contract, and by bid. I chose a mid-point of 1 1/2 years of
6 growth as being purchased at new prices, because it is the most reasonable approximation of
7 the actual manner in which new switch prices are applied by the vendors.

8 **Q. WHAT ASSUMPTION DOES THE WORKSHEET MAKE ABOUT FUTURE**
9 **GROWTH IN ACCESS LINES AND ON WHAT BASIS?**

10 A. In response to ATT-VZ 4-29-2S, Verizon provided detailed forecast data supporting a 1.5%
11 annual line growth. On the basis of Verizon's forecast, I assumed 1.5% annual line growth.

12 **Q. THE WORKSHEET REQUIRES A WEIGHTED AVERAGE COST OF CAPITAL**
13 **TO DETERMINE THE NEW TO GROWTH RATIO. WHAT COST OF CAPITAL**
14 **HAVE YOU REFLECTED IN THE REVISED WORKSHEET?**

15 A. In the worksheet I attached to RR-56, I assumed a cost of capital of 9.54 percent based on the
16 recommendation of AT&T's witness Dr. Hirshleifer and the evidence presented at the hearings.
17 I understand that the Department has adopted a cost of capital of 11.45 percent and that
18 AT&T and WorldCom have moved to reconsider this figure. I have nonetheless used the
19 11.45 percent figure currently adopted by the Department. The result of this change is to
20 increase the percentage of "new" in the new/growth ratio by about a percentage point.

21 **Q. WHAT IS THE RATIO OF NEW SWITCH TO GROWTH PRICING PRODUCED**
22 **BY THE WORKSHEET USING THE ABOVE ASSUMPTIONS AND WHY IS THE**
23 **RESULTING RATIO CORRECT?**

24 A. Using a twelve year analysis period, Verizon's forecast of 1.5 percent demand growth, and a
25 cost of capital of 11.45 percent results in a new to growth ratio of 92.17 : 7.83. This result

confirms that the 90:10 ratio adopted by the Department is reasonable, if not conservatively low.

III. REASONABLE VARIATIONS IN THE WORKSHEET ONLY SLIGHTLY ALTER THE RESULTING RATIO.

Q. THE DEPARTMENT ASKED THAT THE PARTIES PROVIDE A RANGE OF ANALYSES BASED ON VARYING THE CRITICAL ASSUMPTIONS OF THE WORKSHEET.¹⁰ WHAT HAPPENS WHEN YOU VARY THE ASSUMPTIONS DESCRIBED ABOVE?

A. Varying the assumptions within a reasonable range does not significantly alter the results. This confirms the appropriateness of the Department's adoption of a 90:10 new to growth ratio.

Q. HOW DOES THE RATIO CHANGE WHEN YOU DECREASE THE NUMBER OF YEARS IN THE ANALYSIS PERIOD?

A. When you decrease the number of years, the percentage of new lines increases. If no other changes are made to the revised Worksheet, new switches would represent 91.13 percent of total switch material investment over a 15 year period, 93.07 percent over a ten year period, and 96.34 percent over a five year period.

Q. WHAT IS THE EFFECT OF CHANGING THE PERIOD OF TIME DURING WHICH NEW SWITCH PRICES ARE AVAILABLE?

A. As I discussed above, the most reasonable assumption is that new switch pricing would apply to the initial switch purchase and to growth part purchases for the next year and a half, because that comports with actual practice. If one were to assume (contrary to the facts) that new switch pricing is available only for initial purchases and not for any of the subsequent growth part purchases, the new switch cost as a percent of the total would drop to 90.31 percent (from

¹⁰ First Order on Reconsideration, at 8-9.

92.17 percent). If one were to assume that the new switch pricing were available for the first three years of growth part purchases, this percent would increase to 93.82 percent.

Q. HOW WOULD A DECREASE IN THE COST OF CAPITAL CHANGE THE RESULTING RATIO?

A. If the Department were to allow the motions by AT&T and WorldCom for reconsideration of the weighted average cost of capital, the result would be to decrease slightly the share of forward-looking switching material costs accounted for by new switches. If no other changes are made to the revised Worksheet, a weighted average cost of capital of 10.45 percent would change the new switch percent from 92.17 down to 91.78, and a cost of capital of 9.56 percent would result in a new switch share of 91.41 percent. In sum, relatively small changes in the cost of capital do not have a material effect on the analysis.

Q. HOW DOES THE RATIO CHANGE WHEN YOU INCREASE THE PERCENT LINE GROWTH?

A. When you increase the assumed percent line growth to something higher than 1.5 percent per year, new switch costs as a share of total switch costs decreases. For example, with no other changes in the revised Worksheet, 1.5 percent growth produces a new switch share of 92.17, 2.0 percent growth yields 89.65, 2.5 percent growth yields 87.17, and 3.0 percent growth yields 84.73.

Q. PLEASE STATE YOUR CONCLUSIONS REGARDING THE APPROPRIATE RATIO OF NEW SWITCHES TO SWITCH GROWTH EQUIPMENT PURCHASES.

A. The worksheet presented in RR-56 supports the Department's adoption of a 90:10 new to growth ratio, even when revised to be consistent with the relevant inputs decisions made to date by the Department. TELRIC requires that any costing model for switching assume a "dropped

1 in place” network. The Worksheet correctly reflects that essential assumption and the record
2 evidence in this proceeding supports and requires the Worksheet’s assumptions of a twelve-
3 year useful life for digital switches, 1.5 percent line growth, and 11.54 percent cost of capital.
4 Even when the planning period, percent line growth and costs of capital differ within a
5 reasonable range, the resulting ratios are very close to the 90:10 ratio adopted by the
6 Department. Some variations yield a slightly higher ratio, and some yield a slightly lower ratio.
7 The 90:10 ratio adopted by the Department best fits the evidence, and is most consistent with
8 the Department’s other inputs determinations.

9 **IV. THE NEW SWITCH DISCOUNT ADOPTED BY THE DEPARTMENT IS TOO**
10 **LOW AND THE RESULTING SWITCH MATERIAL PRICES ARE TOO HIGH**
11 **BASED ON THE PRICES THAT VERIZON ACTUALLY PAYS FOR NEW**
12 **SWITCHES THROUGH COMPETITIVE BIDS.**

13 **Q. IN ITS ORDER, THE DEPARTMENT DIRECTED PARTIES TO ADDRESS THE**
14 **RELEVANCE OF THE DISCOUNT DATA PROVIDED BY VERIZON IN**
15 **RESPONSE TO RR-49-S.¹¹ PLEASE COMMENT.**

16 A. The competitive bid information provided by Verizon in response to RR-49-S confirms that
17 Verizon pays substantially less for new Nortel switches than the contract price reflected in
18 Verizon’s cost study and in my restatement presented in AT&T’s Initial Brief at pages 62-66.
19 The Nortel pricing inputs used by Verizon, and therefore also used in my restatement, are based
20 solely on Verizon’s current contract with Nortel by which Verizon is entitled to a discount of
21 **<Begin Vz Proprietary XXXX End Vz Proprietary>** percent off of Nortel’s list price for
22 both new and growth equipment. The actual price paid is, of course, the list price minus the
23 discount. RR-49-S shows that this contract pricing is conservatively high because Verizon is

1 able to purchase new switches and obtain substantially higher discounts – *i.e.*, lower prices –
2 from Nortel through competitive bidding.

3 **Q, WHAT FURTHER CONCLUSIONS ABOUT SWITCH MATERIAL**
4 **INVESTMENTS CAN YOU DRAW FROM THE DATA PROVIDED IN**
5 **RESPONSE TO RR-49-S?**

6 A. First, the data provided by Verizon in response to RR-49-S produces an investment per line of
7 \$17.35. Second, Verizon concedes that this evidence contradicts the \$82.62 average
8 investment per line figure in its cost study when Verizon states in its reply brief that the data in
9 RR-49-S produces an investment of \$36 per line. Finally, Verizon’s competitive bid data
10 demonstrates that this \$36 per line investment is too high because it includes costs that already
11 are accounted for in other parts of the Verizon cost study.

12 **Q. HOW DID YOU ARRIVE AT THE \$17.35 NORTEL SWITCH MATERIAL PRICE**
13 **PER LINE?**

14 A. In recent competitive bidding processes, Verizon bought new Nortel switches at discounts of
15 **<Begin Vz Proprietary XXXXXXXXXX End Vz Proprietary>** percent off the list price.¹² In
16 order to arrive at the \$17.35 per line, I ran the SCIS model filed as Ex. VZ-43, and for Nortel
17 used the more conservative switch price discount, namely the discount that Verizon obtained
18 through competitive bidding for Chester, PA, (**<Begin Vz Proprietary XXX End Vz**
19 **Proprietary>**), in lieu of the contract price discount that Verizon assumed. Making this one
20 change, and otherwise taking Verizon’s run of the SCIS model for Massachusetts as given, I
21 derived the following results, as compared to the results used as inputs to Verizon’s cost study.

¹¹ First Order on Reconsideration, at 13.

¹² See Verizon-VA’s Response to the FCC’s RR VZ-VA-32, in the proprietary attachment to RR-49S.

Nortel Switch Material Investment per POTS Line

	VZ-MA's SCIS Results¹³	Revised w/ Competitive Bid Pricing
Total non-ISDN Investment	159,848,646	33,368,559 ¹⁴
POTS Lines	1,934,847	1,922,925 ¹⁵
per POTS line price	\$82.62	\$17.35

Q. HAS VERIZON PROVIDED ANY ANALYSIS OF THE COMPETITIVE BID DATA PROVIDED IN RESPONSE TO RR-49-S?

A. Yes. In its Reply Brief, Verizon stated that the competitive bid data produces a “bid price per line of \$36,”¹⁶ thereby admitting that the switch material prices assumed in its cost study are too high.

Q. DO YOU AGREE WITH VERIZON'S CONTENTION IN ITS REPLY BRIEF THAT THE PRICE PER LINE OF SWITCHING WOULD BE “MUCH HIGHER” THAN THE \$36 PER LINE THAT VERIZON STATES WAS BID BY NORTEL?

No, not for purposes of determining the switch material price to use as an input to Verizon's switch cost workpapers. Verizon has asserted that the actual cost per line for switching would be higher after one adds loadings such as installation and other factors. But the material price input (which Verizon derived as an output from SCIS) is the switch material price alone, prior to the installation and other loadings that are separately accounted for in Verizon's model. Moreover, it appears that the \$36 per line includes the costs of software and features which already have been included in Verizon's cost study separate from the SCIS inputs.

¹³ Ex. VZ-40, Revised Workpaper Part C-2, Section 4, Page 1, Line 9, Column B, and Page 2, Line 6, Column A.

¹⁴ Reflects Nortel competitive bid discount of <Begin Vz Proprietary XXXXX End Vz Proprietary>. See Verizon-VA's Response to the FCC's RR VZ-VA-32, in the proprietary attachment to RR-49S. Calculated using Verizon-MA's own SCIS model submission, Ex. VZ-43.

¹⁵ This is the number of Nortel POTS lines originally assumed in Verizon's cost study. See Ex. VZ-37.

¹⁶ Verizon Reply Br. at 67 (Proprietary Version).

1 To understand why Verizon’s claims are not correct, one must remember that Verizon
2 models its switching costs in two steps. First, Verizon uses the SCIS model to estimate the
3 material cost for switches. One of the inputs to SCIS is the discount from list prices that will be
4 obtained from Nortel and Lucent. SCIS takes that input and other information and derives total
5 switch material costs, which can be expressed on a per line basis. Second, Verizon takes the
6 outputs of its SCIS runs and uses them as inputs to its switch cost workpapers. Verizon
7 grosses up the switch material costs estimated by SCIS to account for additional costs,
8 including: the cost of engineering, furnishing, and installing each switch (through the EF&I
9 factor); costs of capital, depreciation, taxes, and other annual carrying charges; costs of power,
10 land, building expenses, and common overhead. Like these loading factors, Verizon’s cost
11 study accounts for the costs of software and feature port additives separate from the SCIS
12 inputs used to generate switch material prices.

13 Verizon stated in its reply brief that the \$36 per line figure “is for switch material from
14 Nortel and includes *no loading* for other costs such as power, MDF and EF&I,” and that after
15 “application of Verizon MA’s factors” to gross up the material price and account for these other
16 costs, the final result would be “much higher.”¹⁷ But these loading factors for installation, power,
17 *etc.*, already are accounted for elsewhere in Verizon’s cost models. For example, the
18 Department adopted a 29 percent EF&I factor for switching. The fact that the final installed
19 and fully loaded switching cost will of necessity be “much higher” than the uninstalled switch

¹⁷ Verizon’s Reply Br., at 67.

1 material price does not create any ambiguity regarding the \$36 that Verizon has conceded is the
2 proper material price per line for new Nortel switches.

3 Indeed, it appears that the \$36 figure is too high, because it includes costs that Verizon
4 already adds in elsewhere in its model. The correct comparison between the SCIS/MO model
5 results and the competitive bid prices produced by Verizon would be switch material prices,
6 excluding feature hardware and software and other loadings such as engineering, installation,
7 and transportation. The backup documentation provided by Verizon in response to RR-ATT-3
8 indicates that Nortel's bid included costs related to engineering and installation work, stating that

9 <Begin Vz Proprietary XXXX XXXX XXXXXXXXXXXX XXXX XXXXXXXX XXXXXXXX

10 XXXXXXX XXXX X XXXXXXX XXXXXXXXXXXX XX XXX XXXXXXX XXXX XXXX¹⁸

11 XXXXXXX X XXXXXXXXXXXX XXX XXXX XXXXXXX XXXXXXX XXXXXXX XXX XXXXXXX

12 XXXX XXX XXXX XX X XXX X XXX XXX End Vz Proprietary> are all engineering and

13 installation-related material and work that VZ has already accounted for in its EF&I factor, thus
14 resulting in a double count for these charges.

15 **Q. HOW DOES THE COMPETITIVE BID INFORMATION SHOW THAT THE \$36**
16 **PER LINE FIGURE DOUBLE RECOVERS THE COST OF SOFTWARE AND**
17 **FEATURES?**

18 A. In response to RR-ATT-3, Verizon provided "Vendor Switch Bid Comparisons" which list the
19 vendor pricing of new switch components, including features¹⁹ and software or right-to-use

¹⁸ Vendor Switch Bid Comparison for Chester, PA, produced by Verizon in response to RR-ATT-3 (attached hereto as Exhibit 2)

¹⁹ The bid of \$36 per line includes the cost of feature hardware, such as conference and announcement circuits, as required by Verizon's instructions to the vendors that included a detailed list of functions to be included in the bid responses. See February 4, 1998 Bell Atlantic Digital Switching System Input Data for Vendor Quotes, produced by Verizon in response to RR-ATT-3 (attached hereto as Exhibit 3), lines 8A, 8B, 8C, 8D, 9A, 9C, 10 and 19. Verizon's cost study recovered the costs of feature port additives separate from the inputs used to produce switch

1 (“RTU”) fees. For convenience, a copy of the Chester, PA, bid comparison is attached to this
2 testimony as Exhibit 2. The proprietary bid comparison for Chester, PA, shows that Nortel bid
3 **<Begin Vz Proprietary XX XXXX XXX XXX XXX XXXX XXX XX XXXXX XX XX**
4 **End Vz Proprietary>**. However, because Verizon’s cost study accounts for these software
5 (RTU expenses) and feature costs independent of its determination of general switch hardware
6 costs, these costs should not be included in the material price per line.²⁰ By including software
7 and features in the \$36 per line, Verizon would double-recover these costs.

8 **Q. HOW ELSE IS THE COMPETITIVE BID DATA RELEVANT TO THE**
9 **DEPARTMENT’S DETERMINATION OF SWITCH MATERIAL PRICES?**

10 A. The Vendor Switch Bid Comparisons mentioned above and attached as Exhibit 2 support the
11 Department’s finding that “if Verizon were to order several hundred new switches
12 simultaneously, the cost per switch could result in lower per-switch prices” than the 90/10 new
13 to growth melding ordered by the Department.²¹ Verizon sought bids on up to 12 new switches
14 in 1998, and invited bids on 25% of the total (3 switches), 50% of the total (6 switches), 75%
15 of the total (9 switches), or 100 percent of the total (all 12 switches).²² The Vendor Switch
16 Comparisons show that the price per line bid by all three switch manufacturers decreased as the
17 number of offices upon which they bid increased. For example, when Nortel provided pricing

material investments. The Department determined that Verizon did not meet its burden of proving its proposed feature port additive costs and the Department is not seeking additional evidence on feature port costs.

²⁰ Verizon’s feature port additive costs can be found at Ex. VZ-37, Recurring Cost Model, Workpaper Part C-1. The Department determined that Verizon failed to meet its burden of proof on its feature port additive costs and, therefore, the Department ordered Verizon to eliminate the feature port additive costs from its cost study. *See* D.T.E. 01-20 Inputs Order, at 316. Verizon’s software costs are recovered through the RTU fees that Verizon sets forth in its recurring cost model at Workpaper Part G-9.

²¹ D.T.E. 01-20 Inputs Order, at 307.

²² *See* October 12, 1998, letter from Nortel to Bell Atlantic, produced by Verizon in response to RR-ATT-3 (attached hereto as Exhibit 4).

1 for three offices (or 25% of the 12 offices for which Verizon requested bids), the price per line
2 for the Chester, PA, office was <Begin Vz Proprietary XXX End Vz Proprietary>. Bidding
3 on 6 offices (or 50%), the Nortel price for Chester, PA, was <Begin Vz Proprietary XXX
4 End Vz Proprietary>; bidding on 9 offices (or 75%) and 12 offices (100%), the Nortel price
5 was <Begin Vz Proprietary XX End Vz Proprietary>. (As I indicated previously, these
6 prices include software costs as well as installation-related costs that Verizon accounts for
7 separately in its model, and thus should not be included a second time in the switch material
8 prices used as inputs to its model. I note these prices only to show that Verizon's own evidence
9 demonstrates that the price it pays for switching drops when it purchases more switches. These
10 are not the figures that should be used to determine the switch material prices that Verizon had
11 over-estimated using SCIS/MO.)

12 Thus, Verizon's evidence (presented in response to RR-ATT-3) demonstrates that the
13 more switches Verizon purchases, the lower the switch material price.

14 **Q. DOES THIS CONCLUDE YOUR TESTIMONY?**

15 **A.** Yes.